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sufficiently to form a type of its own. No ornaments were discovered.

— Mr. Charles Darwin's work entitled "The Formation of vegetable Mold through the action of Worms, with Observations on their Habits," and the life and letters of the late Sir Charles Lyell, Bart., edited by his sister-in-law, Mrs. Lyell, are announced by Mr. Murray.

— It was probably before Carlyle mollified his views concerning evolution and science, owing possibly to the influence of his friend, Professor Tyndall, that he paid his respects to the theory in the following terms: "I have no patience whatever with these Gorilla Damnifications of Humanity!"

— The Italian government is about to send out a deep-sea expedition to explore the Mediterranean, Prof. Giglioli, the eminent zoölogist of Florence, having charge of the biological part of the work.

— The translations of Nägeli and Schwendener's Treatise on the Microscope is approaching completion. It will be issued by Sonnenschein & Allen, of London.

— English science has met with a great loss in the untimely death of Professor George Rolleston, F. R. S., of Oxford University, who died at his home June 16th, at the comparatively early age of 51 years. Professor Rolleston was, to those who knew him, a most genial, attractive and cultivated man, aside from his thorough scientific spirit and training. He was the author, besides of a number of anatomical and anthropological papers and memoirs, of a comparative anatomy for students, entitled, "Forms of Animal Life." Professor Rolleston first introduced, if we mistake not, the plan of giving detailed accounts, with excellent illustrations, of typical forms of animal life. The death of Professor Rolleston will be deeply mourned by those American scientists who were fortunate enough to have met him at his museum and also at his pleasant English home.

— Another English naturalist, Mr. John Blackwall, died May 11, at the great age of ninety-two. He was the author of a beautifully illustrated folio work on British spiders, and of a number of zoölogical papers.

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## PROCEEDINGS OF SCIENTIFIC SOCIETIES.

DAVENPORT ACADEMY OF NATURAL SCIENCES.—Annual Meeting. Our report of the annual meeting of this flourishing society has been delayed for want of space. We give extracts from President Pratt's report as to the part taken by the Society in American archæology, especially as related to the mound-builders.

The mound-builders were very numerous throughout the Mississippi valley. They dwelt mostly, if not exclusively, in the

neighborhood of the rivers. They were a people entirely distinct from the North American Indians, as we know them, had occupied the country in much earlier times than the latter, and were entirely unknown to them, even by tradition.

Like the modern Indians they were of different tribes; but less warlike and less nomadic, more domestic in their habits; yet their dwellings must have been of the most imperfect and perishable character, no traces of them being found.

They practiced cremation, though but to a limited extent, and only upon great and unusual occasions.

They lived in a very simple manner, possessed few mechanical contrivances, but were a laborious, pains-taking people. That they had some system of barter with neighboring tribes at least (though perhaps limited to mere occasional exchanges as opportunity offered) is shown by the occurrence in the mounds of large sea shells, which, at the nearest must have come from the Gulf of Mexico; obsidian which must be from the far west, mica, not to be found in this region; galena, &c.

Copper was evidently a rare and highly valued article among them; its rarity seems to indicate that they at least did not work the copper mines of Lake Superior or anywhere, and were not much in communication with any people who did.

Small nuggets of drift copper are still occasionally found here, we have several in our museum, picked up in this vicinity; and a numerous people dwelling here for a long period would be likely to find the greater portion of all such specimens existing here, and if they did so, that would furnish a quite sufficient source of supply of material for all the copper relics yet discovered without the necessity of drawing upon the mines. That the mound-builders had no knowledge of the art of smelting is well shown by the following facts:

The numerous copper axes, awls, beads, &c., and the very rare silver ornaments are evidently of the pure native metal and *hammered*, none are found bearing the slightest indications of having been melted; no molds or crucibles, or fragments of any have ever been found, although they would be of the most imperishable character, more so even than the pottery which is exceedingly common.

If cast in molds, many would be made of identical size and form, whereas no duplicates are ever found.

If, as has been argued, though I believe on very insufficient grounds, the copper implements collected in Wisconsin exhibit indications of having been formed in molds, it would have no bearing whatever upon the origin of those of Iowa, which are of very different type; those of the north being mostly of the more modern forms of spears and knives; and not unusually found in mounds, but scattered on the surface or in the shallow Indian graves.

The copper "axes," so called (and very inappropriately, too), in no instances show any indications of having been put to any use as tools, or even of having had handles attached. They were doubtless valued and kept as badges of rank or wealth, and held in high esteem.

Those people undoubtedly smoked tobacco, not, however, as a recreation or habitually for pleasure, but as a kind of ceremonial observance. The pipes are often very elaborately and beautifully carved out of a great variety of kinds of stone, generally of a rather soft character, and were apparently held in very high estimation, perhaps almost sacred. They are all in the Upper Mississippi Valley, of the same general type, having the flat, curved base, which is perforated to serve as a stem and not at all adapted to retain in the mouth for smoking continuously; which fact, with the smallness of the bowl itself, would indicate that it was to be used by passing from one to another of the persons assembled.

They represent a great variety of animal forms, some difficult to determine, but among them are two, well and distinctly representing the elephant, though differing somewhat from each other in form and position. These plainly and unmistakably show that the sculptors were acquainted with the elephants (the mammoth or mastodon), of which, though long extinct, numerous remains are found throughout this country.

Strangest of all, and most contrary to the opinion of archæologists hitherto, it now appears that *the mound-builders had a written language*. Whence derived, or what its origin is matter of the merest conjecture. What its affinities, or whether any connection with other written languages, ancient or modern, no one has as yet been able to determine.

The inscribed tablets in our museum, the only ones of much significance or importance perhaps, which have as yet been discovered in the mounds, have attracted much attention both in this country and in Europe, and by all eminent and well informed archæologists, are considered of the highest importance. They are certain to stimulate research, which will doubtless lead to further discoveries, until it may well be hoped that the key to the language may ultimately be discovered, and something of a history of this ancient people may be made out as written by themselves.

Whether the language was understood by all, or only by a more learned few, or whether these tablets were heirlooms and cherished relics, cannot now be scarcely even guessed.

A rather significant circumstance, perhaps, is the fact that in the same mound with the two tablets first found, were the bones of a young child, partially preserved by the contact of a large number—about 300—copper beads, indicating it to be an important personage, and that persons of high rank were buried there.

Some doubts of course have been expressed regarding the

genuineness of the tablets, though not to any great extent by competent and candid archæologists, and we feel no uneasiness on that account.

The tablets have been sent to the Smithsonian Institution for examination, and were retained there and subjected to the most thorough scrutiny for two months, during which time the National Academy of Sciences held its meeting there, and the heliotype plates of them were obtained under the directions of Professor Baird himself. They were also exhibited throughout the sessions of the meeting of the American Associations for the Advancement of Science at Boston last August.

Any author or other person who cared to inform himself of the facts, has, and has always had ample opportunity to do so, and would at once see that the circumstances of the finding were such as utterly to preclude all possibility of fraud or imposition.

The evidence that they are coëval with the other relics, that is, that they were inhumed with them and before the mound was built, is ample and conclusive and will be so considered by any unbiased mind.

No prehistoric relic ever found has better evidence to establish its genuineness than these, and not one suspicious circumstance in connection with them has been pointed out, nor can there be.

We shall confidently hope for and gladly welcome further discoveries by whosoever made tending to throw more light upon this still obscure and intensely interesting problem, of our earliest predecessors on this continent.

Among the principal additions to this department of the museum since the last annual report, have been fourteen mound-builders' pipes, three copper axes, and a number of other relics from the mounds, secured chiefly by the untiring exertions of our honored associate, the Rev. Mr. Gass, who has spared no time or labor, and who has recently presented his report of the exploration of 75 mounds within the year, only one-fifth of which afforded any relics for the museum, though the investigations are always instructive, and many facts are thus learned.

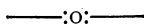
Besides this gratuitous labors and personal expenses borne by himself, about \$70 made up by private contribution has been expended for hired help in opening the mounds; the results have been highly satisfactory; and this important work should be continued, and, if possible, better provided for by some regular appropriations. The time is rapidly passing during which the opportunity for such researches in this vicinity will remain.

We have also received as the product of the persistent enthusiasm of Capt. W. P. Hall about 1100 ancient stone and flint implements, and 150 vessels of ancient pottery, the latter having been exhumed by his own hands from the mounds and ancient burial places of the lower Mississippi valley.

Our collection of mound relics now consists of the four in-

scribed tablets, 32 mound-builder's pipes, 25 copper axes, 300 copper beads, 14 copper awls, and a great number and variety of other relics from the mounds of this region, constituting the most extensive, rare and unique collection of its kind in this country and probably in the world.

Besides these, this department contains 225 vessels of ancient pottery, over 1000 stone implements, and 10,000 of flint, beside about an equal number of broken ones and fragments worth preserving.



## SELECTED ARTICLES IN SCIENTIFIC SERIALS.

AMERICAN JOURNAL OF SCIENCE, July.—Restoration of *Dinoceras mirabile*, by O. C. Marsh. Observations on the structure of Dictyophyton and its affinities with certain sponges, by R. P. Whitfield. Later Tertiary of the Gulf of Mexico, by E. W. Hilgard (with valuable colored map). Turquoise of New Mexico, by B. Silliman.

GEOLOGICAL MAGAZINE, June.—Subsidence and elevation, by J. S. Gardner. The mammoth in Europe, by H. H. Howorth.

ANNALS AND MAGAZINE OF NATURAL HISTORY, May.—Male eels compared with the females, by C. Robin.

June.—On the originally bilateral character of the renal organ of Prosobranchia, and on the homologies of the yolk-sac of Cephalopoda, by E. R. Lankester.

ARCHIV FÜR MIKROSKOPISCHE ANATOMIE, March 8.—On the distribution of phosphorescent organs in fishes, by B. Solger.

ZEITSCHRIFT FÜR WISSENSCHAFTLICHE ZOÖLOGIE, June 14, 1881.—The structure of the stigmata in insects, by O. Krancher (elaborately illustrated). Revision of the Holothuria of Mertens-Brandt, by H. Ludwig. On fish psorosperms, by O. Bütschli. Studies on the Bopyridæ, by R. Kossmann.

ANNALS DES SCIENCES NATURELLES, February.—On a new and very small species of Crocidura from Madagascar, by M. Trouessart. Memoir on the birds of the family Megapodiidæ, by M. Oustalet. Memoir on the disposition of the cervical vertebræ in the Chelonians, by L. Vaillant.

CANADIAN ENTOMOLOGIST, June.—Description of the preparatory changes of *Papilio palamedes* (calchas), by W. H. Edwards.

PSYCHE, organ of the Cambridge Entomological Club, January.—On the number of molts of butterflies, with some history of the moth, *Callosamia promethea*, by W. H. Edwards.

PAPILIO, organ of the New York Entomological Club, June.—On *Pieris bryoniae*, and its derivative forms in Europe and Asia, by W. H. Edwards.